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THE EXPRESSIONS OF EMOTION IN THE PIGEONS.  
II. THE MOURNING DOVE (*ZENAIDURA*  
*MACROURA* LINN.).

BY WALLACE CRAIG.

INTRODUCTION.

THE chief purpose in writing this paper on the Mourning Dove at the present time, is to furnish a basis of comparison for the article which is to follow, on the Passenger Pigeon. For if that remarkable species is extinct, the strange facts regarding its voice and manners ought to be most carefully recorded. The voice and manners of even our most abundant and most familiar birds have been so inadequately studied that we have scarcely a tithe of the complete biography of any one of them; and so the writer feels that the following account of the expressions of emotion in the Mourning Dove is worth while for its own sake. Yet the chief interest in this paper at the present time will come from the light which it helps to throw upon the Passenger Pigeon.

A much more detailed study for comparison is to be found in the first paper of this series<sup>1</sup> on the Blond Ring-Dove, or "Collared Turtle Dove," the species commonly kept in cages; and a still further study in a paper entitled 'The Voices of Pigeons regarded as a means of Social Control' (1908, Craig). The work reported in those papers and in the present two, was done under the guidance of Professor C. O. Whitman, of the University of Chicago, to whom I shall often have occasion to refer as the chief authority on the habits and general biology of the Columbæ. My studies were made in Professor Whitman's large collection of living pigeons, and with his constant direction and advice. I take this opportunity of expressing once more my gratitude to Professor Whitman for his personal interest, his guidance and his counsel, and for the rare privilege of studying in his aviary, stocked with a splendid collection of pigeons from all parts of the world.<sup>2</sup>

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<sup>1</sup> The Expressions of Emotion in Pigeons. I. By Wallace Craig. Journ. Comp. Neurol. and Psychol., Vol. XIX, 1909, pp. 29-80, with 1 plate.

<sup>2</sup> Since these lines were first written, news of the sudden death of Professor Whitman has brought grief to those who knew him personally, and sorrow to all biologists.

A complete account of the expressions of emotion in any bird must contain both a descriptive and a narrative presentation. The present paper accordingly will be divided into two parts, the first descriptive and the second narrative, thus: A. The Forms of Expression; B. The Life-History of Expression.

#### A. THE FORMS OF EXPRESSION.

*General Bearing.* The general bearing of a bird, even when it is standing still or slowly walking, may be as specific as its song or its call-note. This is particularly true of the Passenger Pigeon, as we shall show in the next article in some detail, one of these details being the specific way in which the Passenger Pigeon nods its head. Many pigeons nod their heads in a manner characteristic of the species; some species are characterized by the fact that they do not nod at all. The Mourning Dove nods in a way which is similar to that of several of the smaller species: its nod consists of, first, a quick throw of the head obliquely back and up; secondly, as the head comes down again, the tail goes up, up to a very considerable height; lastly, the tail sinks slowly to its normal level and remains so until the next nod. We shall see that the Passenger Pigeon nods in a very different style.

When the Mourning Dove is flying, as is well known, the swish of its wings through the air has a clear, loud, musical tone. So far as I know, this whistling of the wings, unlike the nod just described, is not at all under the control of the bird and is not expressive of any psychic state.

*Enmity.* I have not had opportunity to observe Mourning Doves fighting. It may be presumed that their fighting is like that of the majority of pigeons. Hence, I shall postpone the discussion of enmity until we take up the Passenger Pigeon, and shall then give a careful account of it.

*Fear (Defensive).* The expression of fear that is seen in all brooding birds, and also in all young fledglings — the erected feathers, glaring eye, snapping bill, and low hiss — is exhibited by the Mourning Dove with the usual intensity. The details are so familiar to bird-lovers that a description of them in this article is unnecessary.

*Alarm (or Fleeing Fear).* The expression of fear treated in the preceding paragraph is that of a bird which, for one reason or another, must stay in its place and meet the danger: A bird when fleeing from danger exhibits a very different expression which it is best to distinguish with the separate name, alarm. The expression of alarm, indeed, is quite the opposite of the expression of defensive fear: for in defense the bird makes itself appear as large and terrible as possible; but in alarm it appresses all the feathers, and, stretching out the neck to get a good view of distant danger, appears extremely slender, inoffensive and inconspicuous.

This expression of alarm is found in all pigeons, and in most if not all is accompanied by an *alarm-note*. The alarm cry of the Mourning Dove, like that of the Blond Ring-Dove, is a single, short, emphatic ejaculation, which at once communicates the alarm to all birds within hearing. Another sound which is well understood as an alarm signal is the noisy fluttering of a frightened bird: let one faint-hearted bird beat against the bars of his cage, the noise of his fluttering will spread terror throughout the aviary.

*The Kah.* The Blond Ring-Dove, as all fanciers of this cage bird know, not only coos but utters vociferously on a great variety of occasions a cry sounding like *kah kah kah kah kah*. This utterance is common to a great many species of pigeons, though in most species it is a single note instead of a repetitional cry. In the Mourning Dove, however, this utterance is greatly reduced; all its variations and applications have disappeared save one, which is the *copulation-note*. The copulation-note is given by both male and female, immediately after coition; in the Mourning Dove it is a faint growling note, repeated two to four times, with rests between. So far as I have seen, the Mourning Doves, throughout the utterance of these sounds, keep the bill wide open; but I know of no other species of pigeons which utters any sound with the bill wide open.

*The Charge.* The Mourning Dove shares with many other pigeons, including the Blond Ring-Dove, a habit of charging upon other individuals with the head held horizontally forward, the tail pointed horizontally back, and the whole body raised till on the tips of the toes. (Expressions in Pigeons, I, plate, fig. 2). In charging, the bird often gives a great leap, or even a series of

leaps, whereas on all other occasions he walks, advancing one foot at a time. The attitude of the charge has become very definite, conventionalized, as it were; perhaps originally the attitude was simply a result of its being the easiest way to cleave the air at full speed, but now it has become a form, a ceremony, and we see the dove assume this position and stalk about slowly, though with scarcely suppressed energy, whenever his aggressiveness is aroused and he is thinking about charging somebody. The Ring Dove, as he charges, utters a loud *kah*, but the Mourning Dove charges silently.

*The Coo.* (a) *The Perch-Coo, or Song.* The cooing of the Mourning Dove is of two distinct types, which may be called respectively the perch-coo, or song proper, and the nest-calling coo, or nest-call; the song being sung usually from a perch, whereas the other coo is given typically in the nest or in a place where the birds are making overtures toward nest building. These two types of coo are distinguishable in nearly every species of pigeon; indeed, many species have three or more different coos, but the Mourning Dove has only these two. The song of the Mourning Dove serves functions which, in the Ring-Dove, are divided between the perch-coo and the bowing-coo.

The perch-coo of this species is the well known strain the plaintive sound of which has given to the bird the name of "Mourning" Dove. This strain impresses one as most beautifully melodious, not only when contrasted with bird songs of a far inferior order, but even in the pigeonry where the *Zenaidura* competes with the gentle cooers of the whole world. Some pigeons have more elaborate songs, but for romantic sweetness there is no pigeon song I ever heard which can approach that of our Mourning Dove. It consists of a series of three (sometimes four) notes on one pitch, preceded by an introductory note which begins below the sustained pitch, glides up above it, and then down to it, thus (No. 1):




The last note in this score is usually omitted. The mere notation can convey no adequate idea of the exquisite plaintiveness of the

strain as rendered by the bird. This song is always given singly, never in a series of repetitions, differing in this respect from the songs of the Ring-Doves and many other species.

When delivering his song, the Mourning Dove does not perform any dance or gesture, as some birds do. He invariably stands still when cooing; even when he coos in the midst of pursuing the female he stops in the chase, stands immovable until the coo is completed, and then runs on. His attitude is, to be sure, very definite, the neck somewhat arched and the whole body rigid; but the impression it gives one is, not that the bird is striking an attitude, but that he is simply holding every muscle tense in the effort of a difficult performance.


The female also utters the perch-coo, though less often than the male, and in a thin, weak voice and staccato tones, which, as compared with the male's song, form so ludicrous a caricature that on first hearing it I burst out laughing. A human burlesquer could not make a more clever travesty. The female's song seems abortive in another way also, in that it is very variable. Four variations of it are represented in the following notations (Nos. 2-5).

No. 2.  
♩ = 165.




coo coo coo coo coo

No. 3.



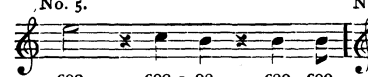
coo coo coo coo coo

No. 4.



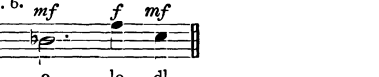
coo coo coo coo coo

No. 5.



coo coo - oo coo coo

No. 6. *mf* *f* *mf*

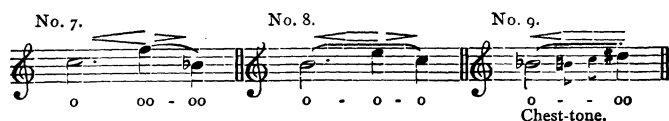


o lo dl

First note hoarse, chest-tone.  
Second and third notes clear head-tones.

*The Coo. (b) The Nest-Call.* The male Mourning Dove, not content with one exquisite lay, sounds also a nest-call which is very different in expression and in its way as perfect as the song. This call is much shorter than the song, and much fainter, so that the field observer may fail ever to hear it. Its typical form is of three notes, a low, a high, and a low, thus somewhat resembling

the first bar of the song, but differing in that the three notes do not glide into one another, there being a clear break from each note to the next. The reader will see that this description would fit the Swiss yodel, and in fact the call of the Mourning Dove is in many instances a perfect yodel. However, in some cases the three notes are not thus distinct, two of them or even all three being slurred together. The following musical scores represent the gradations of such slurring, progressively from No. 6 to No. 9. (For No. 6 see p. 402.)



These samples show that the nest-call of the male is much more variable than his song.

The nest-call is given, as said before, usually in the nest, or in some spot which is likely to be chosen as a nesting site. This is true not only of the Mourning Dove but of pigeons in general; and though the sound differs greatly from species to species, the nest-calling attitude is much the same in all, the male sitting with his body tilted forward, tail pointing up at a high angle, the head so low that bill and crop may rest on the floor, or if the bird be in the nest, the head is down in the hollow. Both the voice and the attitude of the male serve to attract the female, for in all pigeons the nest-call is accompanied by a gentle flipping of the wings, winking eyes, and a seductive turning of the head. In addition to these general columbine gestures, *Zenaidura* has a special bit of display of his own, for during the first note of the nest-call he spreads his tail just enough to show conspicuously the white marks on the outer feathers; soon as this first note is past, the tail closes and the white marks disappear, to flash out again only with the next repetition of the nest-call, before which there is always a considerable interval.

The nest-call of the female I have not often heard, and I am unable to say how far it differs from that of the male.

## B. THE EXPRESSIONAL LIFE-HISTORY.

The preceding pages on the forms of expression have given but little information as to the uses of expression, for these uses can be understood only in connection with the life-history of the species. The life-history can be given here merely in outline; further details can be found in the numerous biographies of the Mourning Dove, in the paper on 'The Voices of Pigeons regarded as a Means of Social Control' (Craig, 1908), and also in the paper on the Blond Ring-Dove (Expressions in Pigeons. I), for the life-histories of the Ring-Dove and Mourning Dove are fundamentally alike.

First, a few remarks on the *development of the young*. The young Mourning Dove even in his squeaking is far more musical than other pigeons; for the begging note of most young pigeons is burred and querulous, but the cry of the young Mourning Dove is a musical sibilant, sliding up the scale, and easily imitated by whistling *sssst*. Gates, in his very interesting paper (1909, p. 11), shows that the young acquires the adult song in a gradual and progressive manner. Nevertheless, the song is not acquired by imitation (Craig, 1908, pp. 89-91); pigeons seem totally devoid of that power of mimicking or mocking which is so wide-spread among the Oscines.

The *breeding habits* of the Mourning Dove as they appear to the ordinary field observer have been described so many times that a repetition of field observations is here unnecessary; I shall treat preferably those details of behavior which can be better observed in the aviary than in the field. As a basis of the narrative I shall tell the story of a pair of captive birds kept in my room, under constant observation, in the summer of 1902.

A pair of Mourning Doves from Professor Whitman's aviary were brought to my room in the month of June. Whether they had reared a brood earlier in the year, I do not know; but in any case the removal to strange quarters naturally interfered with the continuity of their family life, and it was many days before they became amorous again. The male was a little wild, and cooed but seldom. The female was more tame and contented, and it was she who at length caused the bursting forth of the passion that was but smoldering in both their breasts. For on July 2, at 11:17



A. M., she cooed. The song of the female, you remember, is not heard very often, and the effect of this coo upon the male was electrical: he rose majestically to his feet and strutted on tip-toe around the female; then he cooed once, and charged upon her; he chased her all about the cage, stopping three or four times to coo. This charging and driving the female is a regular part of the courting performance. Courtship, having thus recommenced, proceeded daily with singing and charging and some show of anger, for there were Ring-Doves in an adjoining cage which aroused the jealousy of the male.

The nest-call was not heard until July 12. On hearing it, I put in one corner of the cage an artificial nest made of straws in a cigar box. The male dove, however, tried different corners of the cage again and again and again before he finally settled upon the nesting place. Each time that he went to a new corner of the cage he put his head down to see if he could comfortably nest-call there: if he succeeded in getting comfortably into the nest-calling attitude, then he proceeded to nest-call until the female came to him. In one case he called thus for four or five minutes, repeating his refrain forty-five times; then at last the female was aroused and ran excitedly to him. Each time the female thus came to the male in his chosen corner, they both huddled close in that corner caressing one another ecstatically for many minutes together, the male continuing, though at longer intervals, to repeat the nest-call. By this performance, the pair come to an agreement upon a nesting-site, fix the location of it in their memories, and in a true sense consecrate that spot as their home, their temple.

After the nest site, by means of such ceremonies, has been conclusively fixed and dedicated, the female usually remains in the nest to build and fashion it while the male goes off to seek straws and fetch them to her. Each time he returns with a straw there is a little exchange of caresses between the two birds, and either may at this time sound the nest-call. The song or perch-coo also is given during this period of site hunting and nest building, but the song is far less frequent than the nest-call, and of course is not given in the nest. Nest-calling and its accompanying ceremonies continue unabated until the female enters the nest to lay her first egg; then they are dropped rather suddenly, giving place

to a new and different order of ceremonies, those connected with incubation.

Throughout the period when the birds are busy dedicating and building the nest, they are busy also with copulation. The sexual act comes only as the culmination of prolonged preliminaries. The caressing and cooing and nest-calling already mentioned all tend to excite the birds; when thus excited, they both show their eros by a certain spasmodic plucking of the inner sides of the wing quills, often referred to briefly as "preening inside the wing"; the female may even beg from the male in very much the same fashion as the young begs from the parent. Finally they bill, the female putting her beak into the mouth of the male and apparently receiving a little food thrown up by him from his crop. After billing, the female squats, the male mounts, copulation is performed, and then the copulation-note as already described (p. 400).

The interval which must elapse between the first copulation and the laying of the first egg, is in the Blond Ring-Dove about 6 days; in the Mourning Dove it may perhaps be a little less. In the case which I am now narrating the female laid her first egg on July 15, some time between 3:45 and 4:30 P. M.; and her second egg July 17, at 7:50 A. M. One egg hatched July 30, early in the morning; the other egg failed to hatch. Male and female take regular daily turns in sitting on the eggs or young: the female sits from evening till morning, the male from morning till evening, the exchanges taking place usually about 8:30 A. M. and 4:30 P. M. This arrangement is very regular if there is nothing to disturb the birds; but if interloping birds come about, this arouses the anger of the male and he leaves the nest in order to attack them.

During the period of incubation and brooding, the doves are comparatively quiet; in fact their whole temperament is fundamentally altered. Either male or female, when on the nest incubating or brooding, is fearfully quiet, always on the lookout for danger, feathers all appressed, body held low and rigidly still. Yet I have known the female when sitting, to sing her feeble song in answer to her mate; and, each time the sitting bird is relieved by its mate, there is an exchange of little marks of affection, such as flipping the wings, preening the head of the mate, and sometimes a quiet, subdued nest-call. When off and away from the nest,

either bird is much more free to move about and make a noise; of course they are much more quiet during incubation than in the days of courting; but each evening throughout the incubation period, the male on his roost, which is always some distance from the nest, serenades his sitting mate with the song or the nest-call, repeating one or other of these every few minutes as the day wanes. *Zenaidura* is a vesper bird; as compared with other doves, he sings less in the morning and relatively more in the evening.

Comparative quiet thus reigns during the whole time of incubating and brooding. But when the young are more or less fledged, the parents begin once again to become wooers. The song and the nest-call are redoubled, and the male begins once again to charge the female and to pluck his wing quills from the inner side. Thus is inaugurated another brood cycle which passes through the regular round of laying, incubating, brooding and rearing the young. These brood cycles continue to follow one another until the latter part of the summer, when the molt approaches; then as the birds finish the task of rearing the last brood they do not warm up to the work of starting another. The merry play of singing, nest-calling, and charging does not reappear until the following spring. It is said that in winter, even the vocal organs of the Mourning Dove dwindle to an insignificant state.

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